

IN THE CLAIMS:

1. (Currently Amended) A process for the wet fractionation of cereal bran obtained from
after a primary milling of one or more of the cereals of the group comprising wheat, barley, oat,
rye and tritcale resulting in the substantial removal of the endosperm, into protein, sugar and
insoluble fractions, ~~[[the]]~~ a process wherein bran substantially devoid of the endosperm fraction
is subjected to a first enzymatic treatment, utilizing a combination of enzymes of the group
containing starch-hydrolysing enzymes, and aqueous wet milling, ~~enzyme inactivation by wet~~
~~heat treatment, and a separation~~ followed by a separating step whereby resultant aqueous
slurry/suspension is separated into an insoluble fibrous fraction and a soluble fraction, whereby
said soluble fraction is further separated by centrifugal forces into a germ-rich fraction and an
endosperm- and sugar-rich fraction, ~~[[and]]~~ said endosperm- and sugar-rich fraction is further
separated into proteins and sugars and;

said insoluble fibrous fraction containing a cleaned bran consisting of both insoluble
pericarp and aleurone fractions, is further subjected to a ~~hydrolyation~~ hydrolyzation by a second
enzymatic treatment utilizing a combination of one or a mixture of enzymes of the group non-
starch polysaccharidases, and aqueous wet-milling, ~~enzyme inactivation by wet-heat treatment,~~
and a subsequent step whereby the resultant hydrolysate is separated into an insoluble phase and
a soluble phase.

2. (Canceled)

3. (Previously Presented) A process according to claim 1, wherein the first enzymatic
treatment is accomplished using a starch degrading enzyme of the groups amylases and

3 amyloglucosidases.

1 4. (Previously Presented) A process according to claim 1, wherein the second
2 enzymatic treatment is carried out using at least one non-starch degrading polysaccharidase in
3 the form of cellulases, hemicellulases mainly xylanases, beta-glucanases, and pectinases, and/or
4 phytases.

1 5. (Canceled)

1 6. (Previously Presented) A process according to claim 1, wherein the insoluble phase
2 obtained from the hydrolysate and containing primarily insoluble fibers, of the group comprising
3 cellulose, lignin, less accessible hemicellulose, residual aleurone cells and cell wall bound
4 proteins is spray dried, and;
5 the soluble phase obtained from the hydrolysate containing soluble hemicellulose,
6 oligosaccharides, sugars and proteins, and said soluble phase is further separated into a heavy
7 phase containing mainly aleurone cell protein and a light phase containing hemicellulose in the
8 form of soluble hemicellulose and oligosaccharides, and;
9 said light phase is further separated by size exclusion technique into soluble hemicellulose
10 (medium molecular size fraction) and oligosaccharides mixed with sugars (small molecular size
11 fraction).

1 7. (Previously Presented) A process according to claim 1, wherein cleaned bran is cereal
2 bran substantially free of both in water or less polar solvents soluble compounds, derived from
3 wheat, barley, oat, rye or triticale.

1 8. (Previously Presented) A process according to claim 1, wherein the combination of
2 intermittent wet milling with enzymatic treatment is arranged to increase the rate of enzymatic
3 hydrolysis of the substrate thereby improving the overall hydrolysis performance and the
4 subsequent separation of the various fractions by density/solubility and molecular size.

1 9. (Canceled)

1 10. (Previously Presented) A process according to claim 4, wherein the second
2 enzymatic treatment is accomplished using xylanases with high beta 1-4-xylanase (pentosanase)
3 and/or beta-glucanase activity.

1 11-39. (Canceled)

1 40. (Withdrawn) A set up for carrying out the process according to claim 1, wherein it
2 comprises a hydrolysis vessel, a wet mill, a heat exchange for enzymatic inactivation, decanters,
3 a holding tank, an ultra-filter, and optionally at least an evaporator, and dryers.

1 41. (Withdrawn) A set up for carrying out the process according to claim 5, wherein it
2 comprises a hydrolysis vessels, a wet mill, a heat exchange for enzymatic inactivation, decanters,
3 a holding tank, an ultra-filter, and optionally evaporators, and dryers.

1 42. (Currently Amended) A process according to claim 1, wherein the first enzymatic
2 treatment is carried out for less than 3 hours at a pH of 4 to 7.5[[and]], at a temperature [[of]]
3 from 50 to 90°C, and at an enzymatic activity of at least 1 IU/g of substrate, ~~preferably 200 to~~
4 ~~1500 IU/g of substrate.~~

43. (Currently Amended) A process according to claim 1, wherein the second enzymatic treatment is carried out for less than 3 hours at a pH of 4 to 7, ~~preferably 4.5-5.5,~~ and at a temperature ~~[[of]]~~ from 35 to 80°C, and at an enzymatic activity of at least 1 IU/g of substrate, ~~preferably 200 to 1500 IU/g of substrate.~~

44. (Canceled)

45. (New) A process according to claim 42, wherein the first enzymatic treatment is carried out for less than 3 hours at a pH of 4.5 to 7 and at a temperature from 50 to 75°C, at an enzymatic activity of at least 200 to 1500 IU/g of substrate.

46. (New) A process according to claim 43, wherein the first enzymatic treatment is carried out for less than 3 hours at a pH of 4.5 to 5.5 and at a temperature from 40 to 50°C, at an enzymatic activity of at least 200 to 1500 IU/g of substrate.

47. (New) A process according to claim 1, wherein the first enzymatic treatment and aqueous wet milling is followed by an enzyme inactivation by wet heat treatment.

48. (New) A process according to claim 1, wherein the second enzymatic treatment and aqueous wet milling is followed by an enzyme inactivation by wet heat treatment.